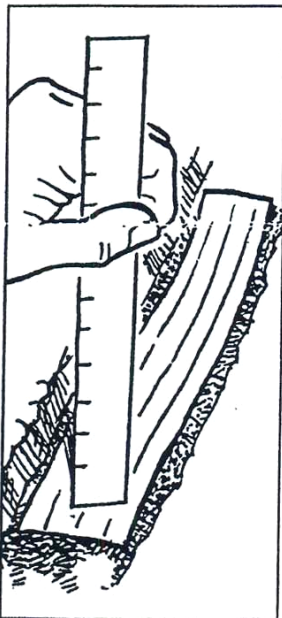


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## Instructions For Using Cotton Strips for Monitoring Biological Activity in Soil

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**INTRODUCTION** Healthy soil contains living organisms which are active in decomposing organic material, and in establishing high quality soil structure. Earthworms, ants, termites, grubs, and other macro-organisms (large size, visible to the unassisted eye) digest plant and animal material and excrete materials more directly usable by plants, and help create a soil structure composed of aggregated clumps and open pores. Micro-organisms (not visible without a magnifier or microscope) such as bacteria, fungi, and actinomycetes, also help to make nutrients available to plants and improve soil structure. Both micro- and macro-organisms are essential to sustain optimal nutrient cycling and healthy conditions for optimum plant root activity.



Soils that are overly compacted, too wet and lack oxygen will show poor biological activity, and reduced plant performance. Soils contaminated with toxic chemicals or excessive salt can also prevent healthy biological activity and plant growth. Similar to plants and plant roots, soil organisms require adequate but not excessive moisture, sufficient air supply to function productively, and favorable soil chemistry.

Sites with poor biological activity should be investigated further to determine the cause and decide on the appropriate course of action. Additional testing should include those described in this guide. Further laboratory testing for chemical contaminants may be advisable if the cause of poor biological activity remains undetermined.

This assay is based on the involvement of living organisms in decomposing plant matter (primarily cellulose) in the soil. The more living organisms in the soil, the faster the rate of decomposition. The products of this decomposition are then used by plants for growth.

Cotton fabric is an industrially processed plant material, and can be used to mimic the effects of soil organisms on natural plant material. Cotton fabric designed specifically for this assay eliminates problems associated with other types of materials, including inconsistent results between materials and batches of materials, and contaminants which can suppress biological activity in soil.

When you perform this test, you are essentially "planting" a standardized, processed plant material in the soil, and then observing the rate of decomposition. A faster decomposition rate indicates more active and greater numbers of living organisms are present, and thus the biological activity in the soil is greater.